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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,399	10/16/2001	Tatsuya Kawahara	77661/57	3063

7590 12/19/2005

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EXAMINER
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HODGE, ROBERT W

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/977,399		KAWAHARA ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Robert Hodge		1746	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 6-21, 23-29 and 31-39 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 10, 13, 16, 19, 25, 29, 34 and 37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
       Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
       Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

Continuation of Disposition of Claims: Claims withdrawn from consideration are 2,3,6-9,11,12,14,15,17,18,20,23,24,26-28,31-33,35,36,38 and 39.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/8/05 has been entered.

### ***Response to Arguments***

2. Applicant's arguments filed 11/8/05 have been fully considered but they are not persuasive for reasons already made of record. Applicants continue to argue the same points, which have already been addressed in previous office actions and therefore will not be reiterated. The amended claims do not overcome the prior art made of record and all rejections of the claims will be maintained.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 10, 19, 25 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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5. Applicants use the terms “adhesiveness” and “strength” to describe specific properties of the different layers of their “multi-layer structure”. However no recitation is made to how the different layers are actually structurally different from one another by the use of said terms. If a multilayer structure is present with different types of materials it is inherent that the different layers are going to be different in strength and adhesiveness. Therefore any multilayered structure with different types of materials as the layers reads on the claims as so recited.

6. With specific regards to claim 19, the examiner is confused by the claim language and cannot decipher what applicants are particularly trying to claim. The recitation of “in an impregnation amount in an in-plane direction of carbon paper and carbonized, a first portion of said base layer is a rigid portion of said base layer where a relatively large amount of binder, and a second portion of said base layer is a deformable portion of said base layer where a relatively small amount of binder” is vague and indefinite and the examiner cannot determine what the above recitation is supposed to define. What is being carbonized? What is “an in-plane direction”? What is “an impregnation amount”? Where and/or why is there a relatively large/small amount of binder? Therefore it is the examiners position that the amendments to the claim do not overcome the prior art and therefore the rejection will still be maintained.

### ***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

((b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

8. Claims 1, 4, 10, 25, 29, 34 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Kato JP 10261421 (U.S. Patent No. 6,127,059 is used as the English translation) hereinafter referred to as Kato.

9. Kato teaches a diffusion layer with at least a base layer (abstract lines 1-2) that has a water-repellent layer (abstract line 15, column 3, line 13 and column 4 line 15 et seq). Kato also teaches “a carbonized yarn of woven fabric [column 3, lines 39-42 and lines 46-47], and a carbonized binder impregnated into the yarn [column 4, lines 15 et seq]”. It is inherent that a binder that is impregnated into a woven yarn would connect the filaments of the yarn together. Kato further teaches a non-woven base layer (column 6, lines 51 and 66) with a synthetic resin binder impregnated into it (column 5, lines 50-52), it being pressed (column 5, line 9) and carbonized (column 3, lines 39-42 and lines 46-47). Kato also teaches a base layer having opposite surfaces (column 6, line 34 and claim 6), that the water-repellent layer is a mixture of carbon and synthetic resin (column 4, lines 15-16 and claim 4), and that the water-repellent layer is multi layered (column 1, lines 15 et seq). It is inherent that multiple layers would have different adhesive properties especially if they are applied to the substrate under different conditions such as disclosed by Kato (column 1, lines 29-31 or column 6 lines 4-8). Kato further teaches the use of two kinds of binders (column 4, lines 50-56). The

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examiner notes that of the materials disclosed by Kato, the order of use determines which material will have a higher rigidity. The examiner notes that the use of the phraseology "higher rigidity" is relative to the materials at hand and can change with any reference. And since there is no recitation in claim 29 what a first or second material would be, the Kato reference reads on the claim as so recited. The examiner further notes that all of the materials listed in the Kato reference have some sort of adhesive properties. Kato also teaches solidifying the carbon and synthetic resin mixture (column 5, lines 9-10) and the presence of filaments (column 5, line 46).

10. The examiner notes that claims 34 and 37 are product-by-process claims. "Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps". See MPEP § 2113. Therefore because all of the structure recited in claims 34 and 37 are present in the Kato reference, claims 34 and 37 are included in the above 102(b) rejection.

11. Claims 13 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Campbell et al. U.S. Patent No. 5,863,673 hereinafter referred to as Campbell et al.

12. In reference to claim 13 Campbell et al. teaches a diffusion layer with at least a base layer that is made from a carbonized yarn woven fabric (column 2, lines 19-26), a conductive synthetic resin binder impregnated into the yarn (column 2, lines 53-54) and that the binder is not carbonized and is solidified (column 3, lines 1-2 and column 4, lines 13-21). It is inherent that a binder that is impregnated into a woven yarn would connect the filaments of the yarn together.

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13. In reference to claim 16 Campbell et al. teaches the above structural features as well as the base layer having water-repellent characteristics (column 3, lines 65-67 and column 4, lines 1-7) and the use of a non-conductive synthetic resin binder (column 6, line 67, column 7, lines 1-3 and Table 2).

14. Claim 19 is rejected under 35 U.S.C. 102(e) as being anticipated by Beattie et al U.S Patent No. 6,667,127 hereinafter referred to as Beattie et al.

15. Beattie et al. teaches a diffusion layer with at least a base layer that is made from a non-woven carbon paper made from carbon fibers (column 6, lines 56-57), a synthetic carbonized resin binder that is non-uniformly impregnated therein (column 6, lines 63-67, column 8, lines 66-67, column 8, line 51 and column 9, line 31), that the layers on the base layer would be differing in the amount binder used (column 9, lines 56-64 and claim 33) and a rigid portion of the base layer would be present (column 9, lines 61-62 and column 11, line 13).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

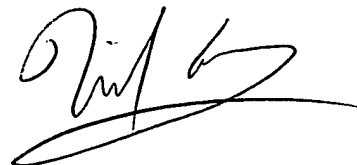
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RWH 12-14-05

MICHAEL BARR  
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read 'Michael Barr', with a long horizontal flourish extending to the right.